eastern America was long ago selected and adequately described and illustrated by DuRoi,[1] who cited references to Linnaeus, Miller, and Plukenet's *Quercus esculi divisura, foliis amplioribus aculeatis!* The bark of the tree was described as smooth, the leaves "hellgrün und glatt," and the acorns over an inch long and an inch wide, quite evidently the northern tree. Sargent again selected a type in 1915; but DuRoi had already done so in 1772. Nothing but confusion results in an attempt in this case to base two distinct species upon the Linnaean treatment.

The name of the northern red oak should therefore in my opinion be *Quercus rubra* L. Sp. Pl. i. 996 (1753)[2]; DuRoi, Harbk. Baumz. 265 (1772); Robinson & Fernald in Gray, Man. ed. 7, 342 (1908).

The first intelligible treatment of the southern tree, as a species, seems to be QUERCUS FALCATA Michx. Hist. Chên. Am. 16, t. 28 (1801), as generally recognized.

BROOKLYN BOTANIC GARDEN,
Brooklyn, New York

NOTES FROM THE HERBARIUM OF THE UNIVERSITY OF WISCONSIN—XVIII

NORMAN C. FASSETT

MYRIOPHYLLUM VERTICILLATUM L., var. **Cheneyi**, n. var., staminibus 4; bracteis 4–9 mm. longis.—WISCONSIN (specimens in Herb. Univ. of Wis.): LaPoint, Madeline Island, July 30, 1896, *L. S. Cheney*, no. 5580 (TYPE) and no. 5594; Port Wing, July 10, 1897, *Cheney*, no. 7145. NEW YORK (specimens in Gray Herbarium): in Hudson River, Mechanicville, Saratoga County, August 28, 1932, *W. C. Muenscher & A. A. Lindsey*, no. 3465; in cove of Hudson River, Coveville, August 28, 1932, *Muenscher & Lindsey*, no. 3466.

Stamen-number is ordinarily diagnostic in *Myriophyllum*, and is used as a primary character in separating species by Schindler.[3] *M. verticillatum* ordinarily has 8 stamens, and the plant here described is placed, by its 4 stamens, in *M. hippuroides* with most keys. Its pectinate bracts place it in the former species.

MIMULUS GLABRATUS HBK., var. **michiganensis** (Pennell), n. comb. *M. glabratus* [subsp.] *michiganensis* Pennell, Acad. Nat. Sci. Mon. i. 119 (1935).

[1] Die Harbkesche . . . Baumzucht 265 (1772).
[2] If more accurate citation is desired, *Q. rubra* L. emend. DuRoi.
[3] Pflanzenreich iv. fam. 225: 78, 80 (1905).

Originally described from the northern extremity of the southern peninsula of Michigan, this may now be recorded from Mackinac County in the Upper Peninsula as follows: broad wet sandy shore of Lake Michigan, Epoufette, September 11, 1932, *Fassett*, no. 14745 (identified as *michiganensis* by Dr. Pennell); seepy banks, beach of Lake Michigan, Brevort, July 9, 1934, *M. L. Fernald & A. S. Pease*, no. 3515; springy shores, upper beach of Lake Michigan, between Epoufette and Brevort, August 1, 1938, *Fassett*, no. 19403. The last collection was noted in the field as having the tube spotted with light brown within and without, but otherwise it agrees with the description.

Another variety with flowers sometimes as large as those of var. *michiganensis*, with leaves like those of var. *Fremontii* (Benth.) Grant, and with pedicels more than twice as long as the subtending leaves, may take the name of

M. GLABRATUS var. **oklahomensis**, n. var., foliis orbiculatis subcordatis marginibus subintegris vel sinuatis; pedicellis 15–27 mm. longis, quam bracteis duplo longioribus; corolla 10–17 mm. longis.—OKLAHOMA: Hinton, in Caddo Canyon, Caddo County, April 26, 1936, *Delzie Demaree*, no. 12338 (TYPE in Gray Herbarium); in edge of small creek, near Alva, Woods County, April 16, 1934, *G. W. Stevens*, no. 3010; in shallow pond near Doby Springs, Harper County, May 5, 1913, *Stevens*, no. 315.

VERONICA CONNATA Raf., var. **glaberrima** (Pennell), n. comb. *V. connata* [subsp.] *glaberrima* Pennell, l. c., 368.

PHYSOSTEGIA **Nuttallii** (Britton), n. comb. *Dracocephalum Nuttallii* Britton in Britton & Brown, Ill. Fl. ed. 2, iii. 117 (1913).

PODOSTEMUM IN NORTH AMERICA. *Podostemum* ranges from the Ottawa River and central Maine southward to Delaware, and from eastern Kentucky to southern Georgia and southwestern Arkansas. The following specimens are in the herbaria of the New York Botanical Garden and of the University of Wisconsin; in this enumeration they are numbered for reference.

ONTARIO or QUEBEC: (1) upper part of Ottawa River, Canada, August, 1896, *F. F. Allen*. QUEBEC: (2) Hull, September 1, 1894, *John Macoun;* (3) Ile Bizard, Montreal, 19 September 1925, *Marie-Victorin*, no. 22081; (4) St. Eustache, August, 1916, *Marie-Victorin*, no. 3212. MAINE: (5) Chemo Stream, Bradley, October, 1898, *E. D. Merrill;* (6) Collins Dam, West Gardiner, August 18, 1936, *N. C. Fassett*, no. 18295. MASSACHUSETTS: (7) South Natick, August 3, 1880, *E. & C. E. Faxon;* (8) South Natick, September 11, 1878, *Thomas Morong*. CONNECTICUT: (9) Farmill River, Huntington, July 16, 1905, *E. H. Eames*, no. 5290. NEW YORK: (10) Grasse River

rapids below Massena, St. Lawrence County, September 4, 1930, *W. C. Muenscher & Bassett Maguire*, no. 1198; (11) St. Regis River, Hogansburg, Franklin County, September 6, 1930, *Muenscher & Maguire*, no. 1197. NEW JERSEY: (12) "Pretty Brook," Princeton, [Torrey Herbarium]; (13) Stocton, August 30, 1895, *H. L. Fisher.* PENNSYLVANIA: (14) West Chester, *W. Darlington;* (15) Martins Creek, Northampton County, *C. S. Williamson;* (16) Winona Falls, near Bushkill, September 6, 1938, *N. C. Fassett & H. H. Calvert*, no. 19488; (17) same data, no. 19489. DELAWARE: (18) Brandywine Creek, Newcastle County, July, 1866, *A. Commons;* (19) Red Clay Creek, Greenbank, September 2, 1884, *Commons;* (20) same data, August 13, 1884. KENTUCKY: (21) near Harlan Court House, Harlan County, August 1893, *T. H. Kearney, Jr.* TENNESSEE: (22) Unaka Mt., *Dr. A. Gattinger.* NORTH CAROLINA: (23) Rainbow Falls, west of Chimney Rock, Rutherford County, July 30, 1933, *Edgar T. Wherry;* (24) French Broad River at Hot Springs, Madison County, July 8, 1898, *Biltmore Herbarium.* GEORGIA: (25) Estotoak Falls, August 11, 1893, *J. K. Small;* (26) Tallulah Falls, Rabun County, alt. 1500–1600 ft., Sept. 3–6, 1894, *Small;* (27) Flint River, Albany, *Chapman;* (28) Falls of the Chatahoochie, Columbus, [Torrey Herbarium]; (29) Chattahoochie River, *Dr. Boykin;* (30) Muckafoonee Creek, Dougherty County, alt. 170 ft., August 26, 1903, *R. M. Harper*, no. 1950. ALABAMA:(31) fertile in fluv. Coosa dit. Clair Cy., sterile in "Chiokwa Creek," September, 1843, *Rugel;* (32) River Falls, Covington County, June 23, 1906, *Harper*, no. 106; (33) Mussel Shoals, Florence, October 18, 1922, *Harper.* MISSISSIPPI: (34) Meridian, June 3, 1897, *S. M. Tracy*, no. 3262; (35) Enterprise, June 12, 1897, *Tracy*, no. 3257. ARKANSAS: (36) Caddo Gap, Montgomery County, April 20, 1937, *V. M. Watts & N. C. Fassett*, no. 18693.

A collection extending the range westward into southeastern Oklahoma is reported from McCurtain County.[1] It is commonly reported as occurring northwestward to Minnesota; Dr. Rosendahl writes me that the report from Minnesota is based upon a specimen, which he has not seen, from Lake Pepin. The writer knows of no habitat suitable for *Podostemum* in the vicinity of Lake Pepin. The locality in Arkansas was visited again in the summer of 1937 by Dr. and Mrs. Watts, in hope of finding fruit. The plant, which in April had thickly clothed the boulders in the stream, had completely disappeared, perhaps because of the grinding action in a recent flood. There was none to be found there in April, 1938, when Dr. Watts and the writer looked for it.

P. CERATOPHYLLUM Michx., f. **abrotanoides** (Nutt.), n. comb. *P. abrotanoides* Nutt., Journ. Nat. Sci. Phila. vii. 105 (1834).

[1] Little & Olmsted, Proc. Okla. Acad. Sci. xv. 47 (1935).

P. CERATOPHYLLUM, f. **chondroides**, n. f., plantae rigidae; caulibus simplicibus 1.5–8 cm. longis 1 mm. diametro; foliorum segmentis ad 1.5 cm. latis, ultimis 0.35–0.60 mm. latis et 1–3-plo longioribus. TYPE, in the Herbarium of the University of Wisconsin, is number 16 listed above. No. 17, growing in the same brook but in different patches, is f. *abrotanoides*.

These two forms represent, respectively, the most slender, lax and elongate, and the most coarse and rigid extremes of the species. There is little resemblance between them; one suggests a *Ruppia*, and the other a *Chondrus*. But a series of intermediates connects these two, and on no characters do these plants seem to resolve into two distinct entities. *P. abrotanoides* has been described as a southern species, but plants inseparable, except perhaps in maximum length of stem, from those of Mississippi and Georgia, have been collected in Quebec. The arguments for considering the genus as represented in eastern North America to consist of but one highly variable species are outlined in the following discussion of characters.

Fruits, as found on most herbarium sheets, are represented by the one persistent carpel devoid of seeds. This carpel is uniform in all specimens examined, being always 5-ribbed on the exterior, with the interior smooth and lustrous. The distribution of flowers or fruits on the plants is not so uniform. *P. ceratophyllum* has been characterized[1] as having flowers single or scattered, and *P. abrotanoides* distinguished by having them clustered at the end of the stem. But in many cases they are more or less grouped at or near the end of the stem, with solitary ones below. Perhaps the most definite example of a terminal cluster is found on collection 1 listed above; this is from the extreme northern station for *Podostemum!*

What appears at first sight to be a clear character is the inclusion in the spathe of most or all of the pedicel of the mature fruit in most of the material identified as *P. abrotanoides*. In some northern material the fruits are well exserted on pedicels up to 8 mm. long. However, included pedicels are the rule on no. 9 from Connecticut, 10 from New York, 14 from Pennsylvania, 29 from Georgia, and 31 from Alabama, and the fruits are definitely long-pedicelled in no. 1 from Canada and 30 from Georgia. In no. 2 from Quebec, 5 from Maine, 13 from New Jersey, 21 from Kentucky, and 35 from Mississippi, there are included, short-exserted, and long-exserted pedicels associated on the same plant. On most individuals the pedicels are terete, on some they are winged, and on others both types occur.

[1] N. Am. Fl. xxii. pt. **1**: 6 (1905).

The stipules are typically adnate below to the petiole as a pair of scarious marginal wings, and above connate and free from the petiole to form a ligule-like outgrowth. On a few specimens from widely separated points (no. 3 from Quebec, 10 & 11 from New York, 34 & 35 from Mississippi) they seem not to be developed. On occasional individuals (no. 6 from Maine and 15 from Pennsylvania) they are well developed on some leaves and absent from others.

Leaf-segments have been used in distinguishing two species, those of *P. ceratophyllum* being characterized as flat, while those of *P. abrotanoides* are described as filiform. But in all specimens they are actually flat. The following measurements of the terminal segments of leaves of pressed material of what is here considered typical *P. ceratophyllum* were made with a compound microscope and micrometer eyepiece. No. 6 from Maine and 7 from Massachusetts, width 350 microns; 8 from Massachusetts, 120–170 microns; 13 from New Jersey, 150–200 microns; 18 from Delaware, 150–180 microns; 20 from Tennessee, 250–300 microns; 23 from North Carolina, 200 microns; 24 from North Carolina, 110–200 microns; 30 from Georgia, 200 microns. *P. ceratophyllum* f. *abrotanoides*, as distinguished in the key below, occurs throughout the range of *P. ceratophyllum*, and its ultimate leaf-segments average a little narrower, as follows: no. 2 from Quebec, 250 microns; 3 from Quebec, 150 microns; 4 from Quebec, 120 microns; 9 from Connecticut, 150–200 microns; 10 from New York, 150 microns; 11 from New York, 100–150 microns; 29 from Georgia, 100 microns; 34 from Mississippi, 100–200 microns; 35 from Mississippi, 120–180 microns.

In the following key, the forms of the extremely variable *P. ceratophyllum* are rather arbitrarily placed in three groups on a basis of habit. The form taken as typical is the one illustrated by Michaux,[1] and is intermediate between the extremes.

a. Terminal segments of leaves many times as long as broad, very narrowly ribbon-like, 100–350 microns wide at tip . . . . *b.*
  b. Plant rather rigid; stems rarely exceeding 1.5 dm. in length; leaves spreading at an angle, often absent from the lower part of the stem . . . . . *P. ceratophyllum* (typical).
  b. Plant lax; stems reaching 8 dm. in length; leaves loosely ascending, usually borne along the whole length of the stem . . . . . *P. ceratophyllum* f. *abrotanoides*.
a. Terminal segments of leaves 1–3 times as long as broad, 350–600 microns wide at tip . . . . . *P. ceratophyllum* f. *chondroides*.

For loans of material of *Myriophyllum* and of *Podostemum* the

[1] Fl. Bor.-Am. ii. 165 (1803).

Photo. W. H. Hodge

CYPERUS FLAVESCENS: FIG. 6, achenes, × 10, from Maritime Alps: FIG. 7, surface of achene, × 70, from Maritime Alps.

Var. POAEFORMIS: plant, × 1, from New Jersey; FIG. 2, achenes, × 10, from Virginia; FIG. 3, surface of achene, × 70, from Virginia.

Var. PICEUS: FIG. 4, achenes, × 10, from Mexico; FIG. 5, surface of achene, × 70, from Mexico.